



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,240	05/30/2001	Mark C. Duhon	22.1397	8266

7590

12/02/2003

Patent Counsel  
SCHLUMBER RESERVOIR COMPLETIONS  
SCHLUMBERGER TECHNOLOGY CORPORATION  
P.O. BOX 1590  
ROSHARON, TX 77583

EXAMINER

HALFORD, BRIAN D

ART UNIT

PAPER NUMBER

3672

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/871,240

Applicant(s)

DUHON ET AL.

Examiner

Brian D Halford

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2,3,5-11 and 27-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37,40 and 41 is/are allowed.
- 6) ☒ Claim(s) 2,3,5-11,27,35,39,42 and 43 is/are rejected.
- 7) ☒ Claim(s) 28-34,36 and 38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 42 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, lines 5 and 6 of claim 42 are grammatically awkward and confusing. The claim recites a heating device to heat the element to a temperature, "[sic] such that the element exhibits." The Examiner assumes that Applicant intended the phrase to read, - -such that the element exhibits superplasticity.- -. Claim 42 will be treated in light of the Examiner's interpretation. However, claim 42 remains indefinite for the reasons cited *supra*. Finally, claim 43 is indefinite since it depends from claim 42.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 2 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Metcalfe *et al.* As stated in paragraph [0001], Metcalfe *et al.* disclose a method and apparatus for plastically locating and sealing a section of liner relative to an existing casing. As disclosed in paragraph [0030], the liner may be fabricated from a soft ductile metal or superplastic material. As illustrated in Figures 3 and 4 and discussed in paragraph [0057], the soft metal liner (26) expands radially to effect a seal with the liner hanger (24). Soft metal ductile bands or components (28, 29), which engage the periphery of the soft metal (26) liner, realize a robust seal with the liner hanger (24) via casing profiles (30, 31).

5. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Reid. Reid discloses a downhole tool for absorbing the deleterious effect of kinetic energy. As discussed in the final and first paragraphs of respective columns 2 and 3, the tool of Reid contains, *inter alia*, a body that deforms elastically under the effect of kinetic energy. As shown in Figures 1 and 2, an elastically deformable body or shock absorber (18, 22) is responsible for absorbing the energy of a moving well tool (16). As stated in the final paragraphs of column 4, components of the shock absorber (18, 22) are fabricated from soft metal alloys or superplastic materials such as brass.

6. Claims 8-11 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Mohaupt. Mohaupt discloses an oil well stimulation method than involves the employment of a heating device in the form of a chemical propellant charge to plastically deform the walls of the explosive housing or explosive component (24).

Art Unit: 3672

Mohaupt depicts the apparatus involved in the stimulation method in Figures 2, 5 and 6A. As disclosed in lines 44-68 and 1-32 of respective columns 3 and 4, an ignitor (30) initiates combustion of a gas generating mixture (28); subsequently, the aluminum walls of the explosive housing or explosive component (24) plastically deform. Attention is specifically drawn to lines 4-15 and 37-41 of respective columns 4 and 6. As shown in Figure 6A and disclosed in lines 48-65 of column 8, explosive housing or explosive component (24) is additionally provided with spaced apart members or weak point connectors (48) to produce a desired flame propagation.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arizmendi in view of Wuenschel. The patent to Wuenschel has been thoroughly discussed in the preceding office action (paper #13). Turning to the Arizmendi patent, a downhole anchor is depicted in Figures 1-3. As discussed in lines 48-67 and 1-48 of respective columns 4 and 5, a body or anchor (22) is actuated by a deformable material (26). The deformable material (26) is subject to plastic deformation thereby actuating the body or anchor (22) to effect an anchoring within the wellbore. Arizmendi states that the deformable material (26) may consist of a ductile metal; however, Arizmendi fails to

Art Unit: 3672

disclose the use of a superplastic material. Therefore, it would have been obvious to a person having ordinary skill in the art, at the time the invention was made, to equip the invention of Arizmendi with the soft aluminum alloy or superplastic material of Wuenschel to realize a desired plastic deformation.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Castano-Mears *et al.* in view of Wuenschel. The patent to Wuenschel has been thoroughly discussed in the preceding office action (paper #13). Castano-Mears *et al.* disclose an expandable well screen for downhole use. As depicted in Figure 2 and discussed in lines 45-52 of column 1, an expandable well screen (36) is provided. Castano-Mears *et al.* disclose in paragraphs 3 and 4 of the aforementioned column that enhanced torsional and tensile strength is highly desirable in a downhole well screen. The patent to Wuenschel, as discussed in the preceding office action (paper #13), teaches the significance of employing downhole ductile soft metals, such as aluminum alloys; specifically, the ductile nature of aluminum alloys or superplastic materials afford considerable strain prior to failure. Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to fabricate the expandable well screen of Castano-Mears *et al.* from the aluminum alloy or superplastic material of Wuenschel to afford increased strength.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gazda in view of Reid. Gazda discloses a device for releasably connecting well tools. Gazda discloses a releasable connector (10) in columns 5-10; additionally, the releasable connector is depicted in Figures 1A and 1B. Gazda discloses in lines 28-35 of column 1

that myriad downhole tools require a jarring motion to effect operation; however, jarring action may negatively impact delicate and expensive instruments. The patent to Reid, as discussed *supra*, teaches the significance of employing downhole ductile soft metal alloys; specifically, the ductile nature of soft metal alloys or superplastic materials afford considerable attenuation of jarring forces. Therefore, it would have been considered obvious to a person of ordinary skill in the art, at the time the invention was made, to fabricate the body of the releasable connector of Gazda with the soft metal alloy or superplastic material of Reid to absorb unexpected jarring forces thereby preserving the integrity of delicate instrumentation.

#### ***Allowable Subject Matter***

11. Claims 37 and 40-41 are allowed.
12. Claim 28-34, 36 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

13. Applicant's arguments filed 08 September 2003 have been fully considered but they are not persuasive.

In response to Applicant's allegation that the office is apparently equating ductibility with superplasticity, Applicant, states in pages 3 and 4 of the specification that a superplastic material may be a soft metal, such as aluminum, which exhibits high



elongation or deformation without breaking. The materials employed by Metcalfe, Wuenschel, Reid and Mohaupt *satisfy* Applicant's definition of superplasticity. Applicant contends in the final paragraph of page 6 of Applicant's Remarks that the prior art fails to anticipate the instant application because the materials disclosed in the prior art references have not been *processed* to exhibit superplastic behavior. However, Applicant's claim language fails to recite *processing* the superplastic materials to exhibit superplasticity. The Examiner acknowledges that the cited prior art is silent with respect to superplastic *processing*. However, Miyake *et al.* disclose in line 12 of column 1 that *aluminum alloys are known to possess superplasticity*. Furthermore, the patent to Takikawa *et al.* disclose that *processing* products from aluminum-based superplastic materials is notoriously conventional. Therefore, the materials disclosed in the cited prior art *are* capable of being superplastically *processed*. However, it is noted again that Applicant's claim language is conspicuously silent with regard to a *processing* step.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patent to LaGrange discloses a device fabricated from deformable memory shape metal. The device is set in a desired downhole location with the application of heat. The patent to Inoue *et al.* disclose that aluminum alloys find employment in myriad disciplines. The patent to McQuilkin discloses that superplastic metals are well known; furthermore, superplastic materials combine the strength of conventional metals with the elongation and formability characteristics of conventional



Art Unit: 3672

plastic materials. Lines 20-22 and 36-50 of column 1 in the patent to Sanders disclose the use of superplastic materials in various industries. The patent to Takikawa *et al.* disclose that forming products from aluminum based superplastic material is notoriously conventional. Finally, the patent to Miyake *et al.* disclose in line 12 of column 1 that aluminum alloys are known to possess superplasticity.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian D Halford whose telephone number is (703) 306-0556. The examiner can normally be reached on M-F 10:30-8:00; alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J Bagnell can be reached on (703) 308-2151. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.



David Bagnell  
Supervisory Patent Examiner  
Art Unit 3672

bdh lodh  
November 29, 2003